



## SEQUENCE LISTING

<110> Hope, Ralph Graham  
McLauchlan, John

<120> VIRAL THERAPEUTICS

<130> DY0U17.001CP1

<140> US 09/973,322

<141> 2001-10-09

<150> US 09/201,916

<151> 1998-12-01

<150> GB 9825951.8

<151> 1998-11-26

<160> 22

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 630

<212> DNA

<213> Hepatitis C Virus

<220>

<221> CDS

<222> (43)...(630)

<400> 1

ggtgcttgcg agtgccccgg gaggtctcgt agaccgtgca cc atg agc acg aat 54  
Met Ser Thr Asn  
1

cct aaa cct caa aga aaa acc aaa cgt aac acc aac cgt cgc cca cag 102  
Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro Gln  
5 10 15 20

gac gtt aag ttc ccg ggt ggc ggt cag atc gtt ggt gga gtt tac ttg 150  
Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu  
25 30 35

ttg ccg cgc agg ggc cct aga ttg ggt gtg cgc gcg acg agg aag act 198  
Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys Thr  
40 45 50

tcc gag cgg tcg caa cct cga ggt aga cgt cag cct atc ccc aag gca 246  
Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys Ala  
55 60 65

cgt cgg ccc aag ggc agg aac tgg gct cag ccc ggg tat cct tgg ccc 294

Arg	Arg	Pro	Lys	Gly	Arg	Asn	Trp	Ala	Gln	Pro	Gly	Tyr	Pro	Trp	Pro		
70						75					80						
ctc	tat	ggc	aat	gag	ggg	tgc	ggg	tgg	gcg	gga	tgg	ctc	ctg	tcc	ccc	342	
Leu	Tyr	Gly	Asn	Glu	Gly	Cys	Gly	Trp	Ala	Gly	Trp	Leu	Leu	Ser	Pro		
85					90					95					100		
agt	ggc	tct	cgg	cct	agt	tgg	ggc	ccc	aac	gac	ccc	cga	cgt	agg	tcg	390	
Ser	Gly	Ser	Arg	Pro	Ser	Trp	Gly	Pro	Asn	Asp	Pro	Arg	Arg	Arg	Ser		
				105					110					115			
cgc	aat	ttg	ggg	aag	gtc	atc	gat	acc	ctt	acg	tgc	ggc	ttc	gtc	gat	438	
Arg	Asn	Leu	Gly	Lys	Val	Ile	Asp	Thr	Leu	Thr	Cys	Gly	Phe	Val	Asp		
			120					125					130				
ctc	atg	ggg	tac	ata	ccg	ctc	gtc	ggc	gcc	cct	ctt	aga	ggc	gct	gcc	486	
Leu	Met	Gly	Tyr	Ile	Pro	Leu	Val	Gly	Ala	Pro	Leu	Arg	Gly	Ala	Ala		
		135						140					145				
agg	gcc	ctg	gcg	cat	ggc	gtc	cgg	gtt	ctg	gaa	gac	ggg	gtg	aac	tat	534	
Arg	Ala	Leu	Ala	His	Gly	Val	Arg	Val	Leu	Glu	Asp	Gly	Val	Asn	Tyr		
		150				155					160						
gca	aca	ggg	aac	ctt	cct	ggg	tgc	tct	ttc	tct	atc	ttc	ctt	ctg	gcc	582	
Ala	Thr	Gly	Asn	Leu	Pro	Gly	Cys	Ser	Phe	Ser	Ile	Phe	Leu	Leu	Ala		
165					170					175					180		
ctg	ctc	tct	tgc	ctg	act	gtg	ccc	gct	tca	gcc	tac	caa	gtg	cgc	aac	630	
Leu	Leu	Ser	Cys	Leu	Thr	Val	Pro	Ala	Ser	Ala	Tyr	Gln	Val	Arg	Asn		
				185				190						195			

<210> 2  
 <211> 60  
 <212> DNA  
 <213> Hepatitis C Virus

<220>  
 <221> CDS  
 <222> (1)...(60)  
 <223> Corresponds to aa 125 to 144 of SEQ ID. No. 1

<400> 2																
acc	ctt	acg	tgc	ggc	ttc	gtc	gat	ctc	atg	ggg	tac	ata	ccg	ctc	gtc	48
Thr	Leu	Thr	Cys	Gly	Phe	Val	Asp	Leu	Met	Gly	Tyr	Ile	Pro	Leu	Val	
1				5					10					15		

ggc	gcc	cct	ctt													60
Gly	Ala	Pro	Leu													
			20													

<210> 3  
 <211> 18

<212> DNA  
<213> Hepatitis C Virus

<220>  
<221> CDS  
<222> (1)...(18)  
<223> Corresponds to aa 161-166 of SEQ ID. No. 1

<400> 3  
ggt gtg aac tat gca aca  
Gly Val Asn Tyr Ala Thr  
1 5

18

<210> 4  
<211> 1900  
<212> DNA  
<213> Human

<220>  
<221> misc\_feature  
<222> (1)...(1900)  
<223> n = A,T,C or G

<400> 4  
cgtcttcggg acgcgcccgc tcttcgcctt tcgtgcagtc cgcgcgattt ctttctccag 60  
gaagaaaaat ggcattccgtt gcagttgata cacaaccgag tgtggtgact cgggtggtca 120  
acctgccctt ggtgagctcc acgtatgacc tcattgtctc agcctatctc agtacaaagg 180  
accagtatcc ctacctgaag tctgtgtgtg agatgscaga gaacggtgtg aagaccatca 240  
cctccgtggc catgaccagt gctctgcccc tcattccaga gctagagccg caaattgcag 300  
ttgccgatac ctatgcctgt aaggggctag acaggattga ggagagactg cctattctga 360  
atcagccatc aactcagatt gttgccaatg ccaaaggcgc tgtgactggg gcaaaagatg 420  
ctgtgacgac tactgtgact ggggccaagg attctgtngc cagcacgata acaggggtga 480  
tggacaagac caaaggggca gtgactggca gtgtggagaa gaccaagtct gtggtcagtg 540  
gcagcattaa cacagtcttg gggagtcgga tgatgcagct cgtgagcagt ggcgtagaaa 600  
atgcactcac caaatcagag ctgttggtag aacagtacct cctctcact gaggaagaac 660  
tagaaaaaga agcaaaaaaa gttgaaggat ttgatctggt tcagaagcca agttattatg 720  
ttagactggg atccctgtct accaagcttc actcccgctc ctaccagcag gctctcagca 780  
gggttaaaga agctaagcaa aaaagccaac agaccatttc tcagctccat tctactgttc 840  
acctgattga atttgccagg aagaatgtgt atagtgccaa tcagaaaatt caggatgctc 900  
aggataagct ctacctctca tgggtagagt ggaaaaggag cattggatat gatgatactg 960  
atgagtccca ctgtgctgag cacattgagt cacgtactct tgcaattgcc cgcaacctga 1020  
ctcagcagct ccagaccagc tgccacaccc tctgttccaa catccaaggt gtaccacaga 1080  
acatccaaga tcaagccaag cacatggggg tgatggcagg cgacatctac tcagtgttcc 1140  
gcaatgctgc ctcttttaa gaagtgtctg acagcctcct cacttctagc aaggggcagc 1200  
tgcagaaaat gaaggaatct ttagatgacg tgatggatta tcttgtaac aacacgcccc 1260  
tcaactggct ggtaggtccc ttttatcttc agctgactga gtctcagaat gctcaggacc 1320  
aaggtgcaga gatggacaag agcagccagg agaccagcg atctgagcat aaaactcatt 1380  
aaacctgccc ctatcactag tgcatgctgt ggccagacag atgacacctt ttgttatgtt 1440  
gaaattaact tgctaggcaa ccctaaattg ggaagcaagt agctagtata aaggccctca 1500  
attgtagtgt tttccagctg aattaagagc tttaaagttt ctggcattag cagatgattt 1560  
ctgttcacct ggtaagaaaa gaatgatagg cttgtcagag cctatagcca gaactcagaa 1620  
aaaattcaaa tgcacttatg ttctcattct atggccattg tgttgccctc gttactgttt 1680  
gtattgaata aaaacatctt catgtgggct ggggtagaaa ctgggtgtctg ctctgggtgtg 1740  
atctgaaaag gcgtcttcac tgctttatct catgatgctt gcttgtaaaa cttgatttta 1800

gtttttcatt tctcaaatag gaatactacc tttgaattca ataaaaattca ctgcaggata 1860  
gaccagttna gnagcaaaaca nncangtaca cnnaaganac 1900

<210> 5

<211> 437

<212> PRT

<213> Human

<220>

<221> VARIANT

<222> (1)...(437)

<223> Xaa = Any Amino Acid

<400> 5

Met	Ala	Ser	Val	Ala	Val	Asp	Pro	Gln	Pro	Ser	Val	Val	Thr	Arg	Val
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Val	Asn	Leu	Pro	Leu	Val	Ser	Ser	Thr	Tyr	Asp	Leu	Met	Ser	Ser	Ala
			20					25					30		
Tyr	Leu	Ser	Thr	Lys	Asp	Gln	Tyr	Pro	Tyr	Leu	Lys	Ser	Val	Cys	Glu
		35				40					45				
Met	Xaa	Glu	Asn	Gly	Val	Lys	Thr	Ile	Thr	Ser	Val	Ala	Met	Thr	Ser
	50					55					60				
Ala	Leu	Pro	Ile	Ile	Gln	Lys	Leu	Glu	Pro	Gln	Ile	Ala	Val	Ala	Asp
65					70					75				80	
Thr	Tyr	Ala	Cys	Lys	Gly	Leu	Asp	Arg	Ile	Glu	Glu	Arg	Leu	Pro	Ile
				85					90					95	
Leu	Asn	Gln	Pro	Ser	Thr	Gln	Ile	Val	Ala	Asn	Ala	Lys	Gly	Ala	Val
			100					105					110		
Thr	Gly	Ala	Lys	Asp	Ala	Val	Thr	Thr	Thr	Val	Thr	Gly	Ala	Lys	Asp
		115					120					125			
Ser	Val	Ala	Ser	Thr	Ile	Thr	Gly	Val	Met	Asp	Lys	Thr	Lys	Gly	Ala
	130					135					140				
Val	Thr	Gly	Ser	Val	Glu	Lys	Thr	Lys	Ser	Val	Val	Ser	Gly	Ser	Ile
145					150					155				160	
Asn	Thr	Val	Leu	Gly	Ser	Arg	Met	Met	Gln	Leu	Val	Ser	Ser	Gly	Val
				165					170					175	
Glu	Asn	Ala	Leu	Thr	Lys	Ser	Glu	Leu	Leu	Val	Glu	Gln	Tyr	Leu	Pro
		180						185					190		
Leu	Thr	Glu	Glu	Glu	Leu	Glu	Lys	Glu	Ala	Lys	Lys	Val	Glu	Gly	Phe
		195					200					205			
Asp	Leu	Val	Gln	Lys	Pro	Ser	Tyr	Tyr	Val	Arg	Leu	Gly	Ser	Leu	Ser
	210					215					220				
Thr	Lys	Leu	His	Ser	Arg	Ala	Tyr	Gln	Gln	Ala	Leu	Ser	Arg	Val	Lys
225					230					235				240	
Glu	Ala	Lys	Gln	Lys	Ser	Gln	Gln	Thr	Ile	Ser	Gln	Leu	His	Ser	Thr
				245					250					255	
Val	His	Leu	Ile	Glu	Phe	Ala	Arg	Lys	Asn	Val	Tyr	Ser	Ala	Asn	Gln
		260						265					270		
Lys	Ile	Gln	Asp	Ala	Gln	Asp	Lys	Leu	Tyr	Leu	Ser	Trp	Val	Glu	Trp
		275					280					285			
Lys	Arg	Ser	Ile	Gly	Tyr	Asp	Asp	Thr	Asp	Glu	Ser	His	Cys	Ala	Glu
	290					295					300				
His	Ile	Glu	Ser	Arg	Thr	Leu	Ala	Ile	Ala	Arg	Asn	Leu	Thr	Gln	Gln
305					310					315				320	
Leu	Gln	Thr	Thr	Cys	His	Thr	Leu	Leu	Ser	Asn	Ile	Gln	Gly	Val	Pro



<220>  
 <223> oligonucleotides used to construct HCV core  
 protein deletion plasmids

<400> 8  
 gtaaccttcc tggttgctct tgagatcta 29

<210> 9  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotides used to construct HCV core  
 protein deletion plasmids

<400> 9  
 gtaacctttg agatcta 17

<210> 10  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotides used to construct HCV core  
 protein deletion plasmids

<400> 10  
 ctggcgcatg gagatcta 18

<210> 11  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotides used to construct HCV core  
 protein deletion plasmids

<400> 11  
 ctggcccatg gtgttaacta tgcaacag 28

<210> 12  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotides used to construct HCV core  
 protein deletion plasmids

<400> 12  
 ctggcccatg gcgtccgggt tctggaagac g 31

<210> 13  
 <211> 37  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> oligonucleotides used to construct HCV core  
           protein deletion plasmids  
  
 <400> 13  
 cgatagaggc gctgccaggg ccctggcgtg agatcta 37  
  
 <210> 14  
 <211> 52  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> HCV1 oligonucleotide for plasmid construction  
  
 <400> 14  
 catgggggtac atagcgctcg tcggcgccgc cttagaggc gctgcgaggg cc 52  
  
 <210> 15  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> HCV2 oligonucleotide for plasmid construction  
  
 <400> 15  
 ctagagagcg caagacgccc cgcgtcaccg gcggcg 36  
  
 <210> 16  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> primer derived from GBV-B, nucleotides 428-448,  
           for plasmid construction  
  
 <400> 16  
 ggagatctcg tagaccgtag cacatg 26  
  
 <210> 17  
 <211> 38  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> primer derived from GBV-B, nucleotides 842-868,  
           for plasmid construction

<400> 17  
 ggggatccct agtggacacc gaaccaacca gtagccca 38  
  
 <210> 18  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> primer derived from GBV-B, nucleotides 1003-1029,  
 for plasmid construction  
  
 <400> 18  
 ggggatcctc agatcacaca accaggctcg tgtagg 36  
  
 <210> 19  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> primer derived from GBV-B, nucleotides 1618-1639,  
 for plasmid construction  
  
 <400> 19  
 ggggtactcta gagtgatagg cctgggtc 27  
  
 <210> 20  
 <211> 49  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> primer derived from GBV-B for plasmid construction  
  
 <400> 20  
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 <210> 21  
 <211> 156  
 <212> PRT  
 <213> GBV-B  
  
 <400> 21  
 Met Pro Val Ile Ser Thr Gln Thr Ser Pro Val Pro Ala Pro Arg Thr  
 1 5 10 15  
 Arg Lys Asn Lys Gln Thr Gln Ala Ser Tyr Pro Val Ser Ile Lys Thr  
 20 25 30  
 Ser Val Glu Arg Gly Gln Arg Ala Lys Arg Lys Val Gln Arg Asp Ala  
 35 40 45  
 Arg Pro Arg Asn Tyr Lys Ile Ala Gly Ile His Asp Gly Leu Gln Thr  
 50 55 60  
 Leu Ala Gln Ala Ala Leu Pro Ala His Gly Trp Gly Arg Gln Asp Pro  
 65 70 75 80  
 Arg His Lys Ser Arg Asn Leu Gly Ile Leu Leu Asp Tyr Pro Leu Gly



	85		90		95
Trp Ile Gly Asp Val Thr Thr His Thr Pro Leu Val Gly Pro Leu Val					
100		105		110	
Ala Gly Ala Val Val Arg Pro Val Cys Gln Ile Val Arg Leu Leu Glu					
115		120		125	
Asp Gly Val Asn Trp Ala Thr Gly Trp Phe Gly Val His Leu Phe Val					
130		135		140	
Val Cys Leu Leu Ser Leu Ala Cys Pro Cys Ser Gly					
145	150		155		

<210> 22  
 <211> 191  
 <212> PRT  
 <213> HCV

<400> 22

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn					
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Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly					
20		25	30		
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala					
35		40	45		
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro					
50	55	60			
Ile Pro Lys Ala Arg Arg Pro Lys Gly Arg Asn Trp Ala Gln Pro Gly					
65	70	75	80		
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp					
85		90	95		
Leu Leu Ser Pro Ser Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro					
100		105	110		
Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys					
115		120	125		
Gly Phe Val Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu					
130		135	140		
Arg Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp					
145	150	155	160		
Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile					
165		170	175		
Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala					
180		185	190		